



Argonne
NATIONAL
LABORATORY

... for a brighter future

APS/User Monthly Meeting

August 27, 2008

Murray Gibson



U.S. Department
of Energy

UChicago ►
Argonne_{LLC}



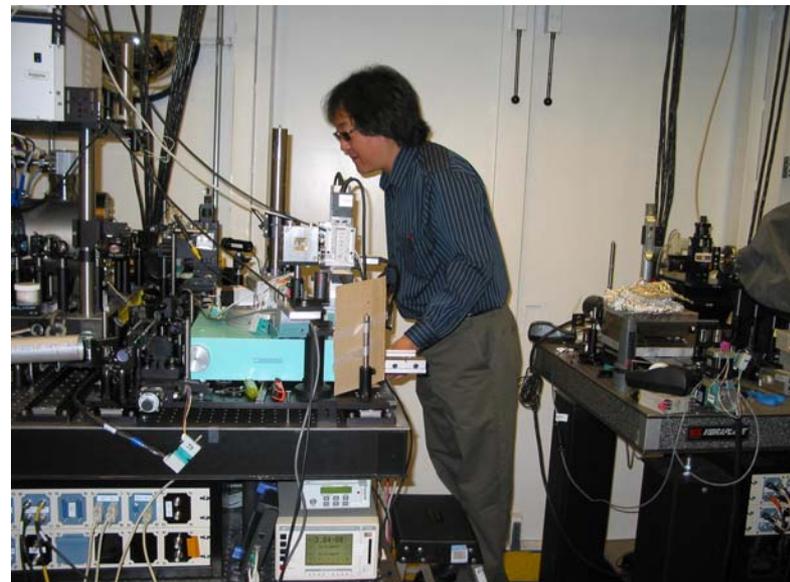
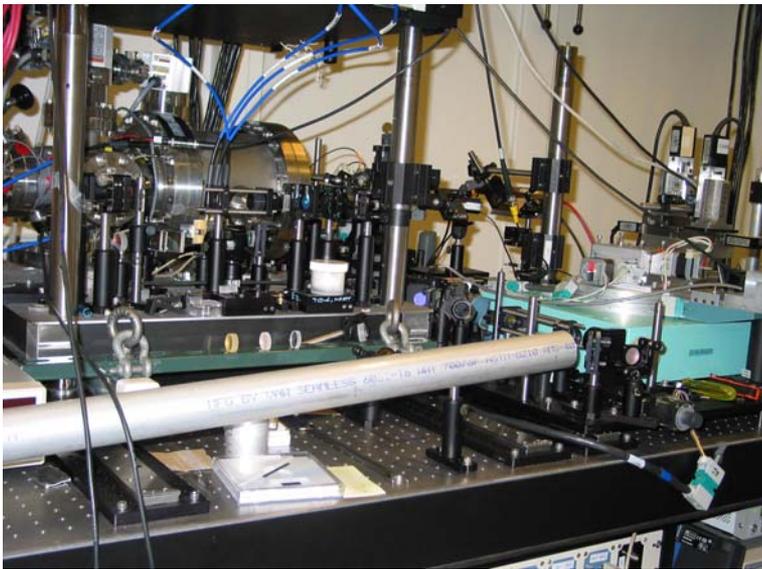
A U.S. Department of Energy laboratory
managed by UChicago Argonne, LLC

Agenda

- 2:45 p.m. APS Update - Murray Gibson
- 3:05 p.m. Design and Construction of the LCLS Undulator System by APS - Efim Gluskin
- 3:25 p.m. APS Internal Assessment of the Short Pulse (SPX) Project - Rod Gerig
- 3:45 p.m. Adjourn

7 ID-C Laser Incident

- General user suspected that he viewed diffused laser light
- Occurred on a Saturday evening, but waited until COB next Wednesday to notify beamline staff
- APS staff arranged for new eye examination – no injury found
- Initial fact-finding team interviewed general user
- ORPS report filed as a Management Concern due to questions regarding administrative control of laser setup
- Investigation committee formed to evaluate administrative controls followed – In Progress



ISMS Verification

- Thanks for all your help, APS shone in the review
 - *ESAF system found very strong, an example for ANL*
 - *Power Supplies Group, GSECARS singled out as exceptional*
 - One level II finding on documentation for use of work request system

- Lab criticized (in draft report) for improper balancing of guiding principles
 - “Line Management Responsibility” with “Competence Commensurate with Responsibility” – a level I finding
 - Primary example was incident investigation
 - *HSS investigation this week at the lab is looking at two incidents in MSD, and their follow-up, in more detail*
 - Work planning and control at the lab level also criticized
 - *Actions ongoing to address this through the Lab Management System (LMS)*

- APS produced 50% more protein structures in 2007 than any other synchrotron facility in the world (1203 APS vs 807 for ESRF)
- APS has almost twice as many high impact papers (Science/Nature/PRL/PNAS) in high pressure science compared with ESRF (96 vs 55)
- XPCS – APS is the most productive facility showing impact in the science of soft materials – 26 high impact papers in three years
- Breakthroughs in accelerator R&D re upgrade

PRL 100, 244802 (2008)

PHYSICAL REVIEW LETTERS

week ending
20 JUNE 2008

A Proposal for an X-Ray Free-Electron Laser Oscillator with an Energy-Recovery Linac

Kwang-Je Kim,¹ Yuri Shvyd'ko,¹ and Sven Reiche²

¹*Advanced Photon Source, Argonne National Laboratory, Argonne, Illinois 60439, USA*

²*UCLA, Physics and Astronomy Department, Los Angeles, California 90095, USA*

(Received 14 March 2008; published 17 June 2008)

We show that a free-electron laser oscillator generating x rays with wavelengths of about 1 Å is feasible using ultralow emittance electron beams of a multi-GeV energy-recovery linac, combined with a low-loss crystal cavity. The device will produce x-ray pulses with 10^9 photons at a repetition rate of 1–100 MHz. The pulses are temporally and transversely coherent, with a rms bandwidth of about 2 meV, and rms pulse length of about 1 ps.

DOI: [10.1103/PhysRevLett.100.244802](https://doi.org/10.1103/PhysRevLett.100.244802)

PACS numbers: 41.60.Cr, 41.50.+h, 42.55.Vc

APS bottoms-up budget exercise

DOE
presentation
VG

- ### Budget Scenarios for FY09 with 10% Cut
- Option 1: Shed additional 2 physics FTEs relative to flat-budget scenario
 - RIF: 1 FTE postdoc (LDRD)
 - Move 1 FTE physicist to ERL
 - RIF: 1 FTE physicist
 - Continue restrained spending
 - Results:
 - Slower progress
 - Slower progress
 - Option 2: Go from 17 to 15 FTEs
 - Use four two-postdoc positions
 - Must sometimes be replaced
 - Consequence:
 - Time to complete projects
 - Increased risk
 - Reduced productivity
 - Both options result in a 10% budget cut

FY 2009 APS Budget Request

Group: OAO
Division: ASO

Activities	FY08		FY09		FY09		FY09		FY09 FTE Change from FY08		
	Budget (\$K)	FTEs	Budget (\$K)	FTEs	FTE Budget (\$K)	ASO DDCN	M&O	Example	Non-Example	Union	
Accelerator operations	\$1,280.0	10.00	\$1,280.0	10.00	\$1,280.0						
Machine studies & operational preparation	\$350.0	2.00	\$350.0	2.00	\$350.0						
Routine maintenance & repair of accelerator	\$177.0	1.00	\$177.0	1.00	\$177.0						
Fault repair of accelerator systems	\$100.0	0.70	\$100.0	0.70	\$100.0						
Technical support of beamline	\$184.0	1.00	\$184.0	1.00	\$184.0						
Safety-related activities, test document preparation	\$184.0	1.00	\$184.0	1.00	\$184.0						
Writing technical reports and papers	\$184.0	1.00	\$184.0	1.00	\$184.0						
Supervision, mentoring, management	\$184.0	1.00	\$184.0	1.00	\$184.0						
Other	\$184.0	1.00	\$184.0	1.00	\$184.0						
Operations	\$3,274.0	18.50	\$3,274.0	18.50	\$3,274.0						
Support & improvement of operations (M&O & S&O)	\$771.0	3.20	\$771.0	3.20	\$771.0						
Participation in scientific & technical meetings	\$771.0	3.20	\$771.0	3.20	\$771.0						
Improved Operations	\$285.0	1.00	\$285.0	1.00	\$285.0						
M&O of novel accelerator and x-ray source systems	\$285.0	1.00	\$285.0	1.00	\$285.0						
R&D toward superconducting technology	\$285.0	1.00	\$285.0	1.00	\$285.0						
Theory development	\$285.0	1.00	\$285.0	1.00	\$285.0						
Writing technical reports and papers	\$285.0	1.00	\$285.0	1.00	\$285.0						
Total Current Activities	\$4,412.0	24.10	\$4,412.0	24.10	\$4,412.0						
Total New Activities to be Added	\$0.0	0.00	\$0.0	0.00	\$0.0						
Total for Group	\$4,412.0	24.10	\$4,412.0	24.10	\$4,412.0						
M&O to Total Budget %		3.8%		2.7%							

Budget Presentation Schedule

• Thursday, July 31

- R. Janik (SO)
- B. Glavin (UES)
- G. Markoski (SD)
- H. Frischman (S&A)

• Friday, August 1

- P. Janjan (BCDA)
- N. Arnold (CTLS)
- K. Sidorowicz (IT)
- J. Maclean (CS)
- S. Leatherman (IS)
- P. Dendlerberg (MED)
- B. Rindhorst (EMD)
- G. Goppinger (M&O)
- L. ...

9:00am - 9:50am	
9:50am - 10:40am	
10:40am - 11:30am	
11:30am - 12:20pm	
9:00am - 9:50am	
9:50am - 10:40am	
10:40am - 11:30am	
11:30am - 12:20pm	
1:00pm - 1:50pm	
1:50pm - 2:40pm	
2:40pm - 3:30pm	
3:30pm - 4:20pm	
4:20pm - 4:50pm	
1:00pm - 1:45pm	
1:45pm - 2:30pm	
2:30pm - 3:15pm	
3:15pm - 4:00pm	
4:00pm - 4:45pm	
4:45pm - 4:00pm	
10am - 9:45am	
9:45pm - 4:40pm	
4:40pm - 4:50pm	
4:50pm - 5:00pm	
9am - 9:25am	
9:25am - 10:20am	
10:20am - 10:50am	
10:50am - 11:25am	
11:25am - 12:20pm	
12:20pm - 2:25pm	
2:25pm - 3:20pm	
3:20pm - 3:55pm	
3:55pm - 4:30pm	
4:30pm - 5:25pm	

Group requests, rolled up

existing activities and staff only

	Effort	M&S	Total	M&S fraction
AES	34,250.0	5,809.5	40,059.5	14.5%
ASD	18,126.7	5,074.1	23,200.8	21.9%
XSD	29,531.5	7,181.6	36,713.1	19.6%
CC172	0.0	18,000.0	18,000.0	
	<u>81,908.2</u>	<u>36,065.2</u>	<u>117,973.4</u>	

Even though the bottom-line looks large, I appreciate that groups have been realistic

including all new proposed activities and hires

	Effort	M&S	Total
AES	35,889.3	6,718.7	42,608.0
ASD	19,733.1	5,970.3	25,703.4
XSD	31,952.6	10,326.6	42,279.2
CC172	0.0	18,000.0	18,000.0
	<u>87,575.0</u>	<u>41,015.6</u>	<u>128,590.6</u>

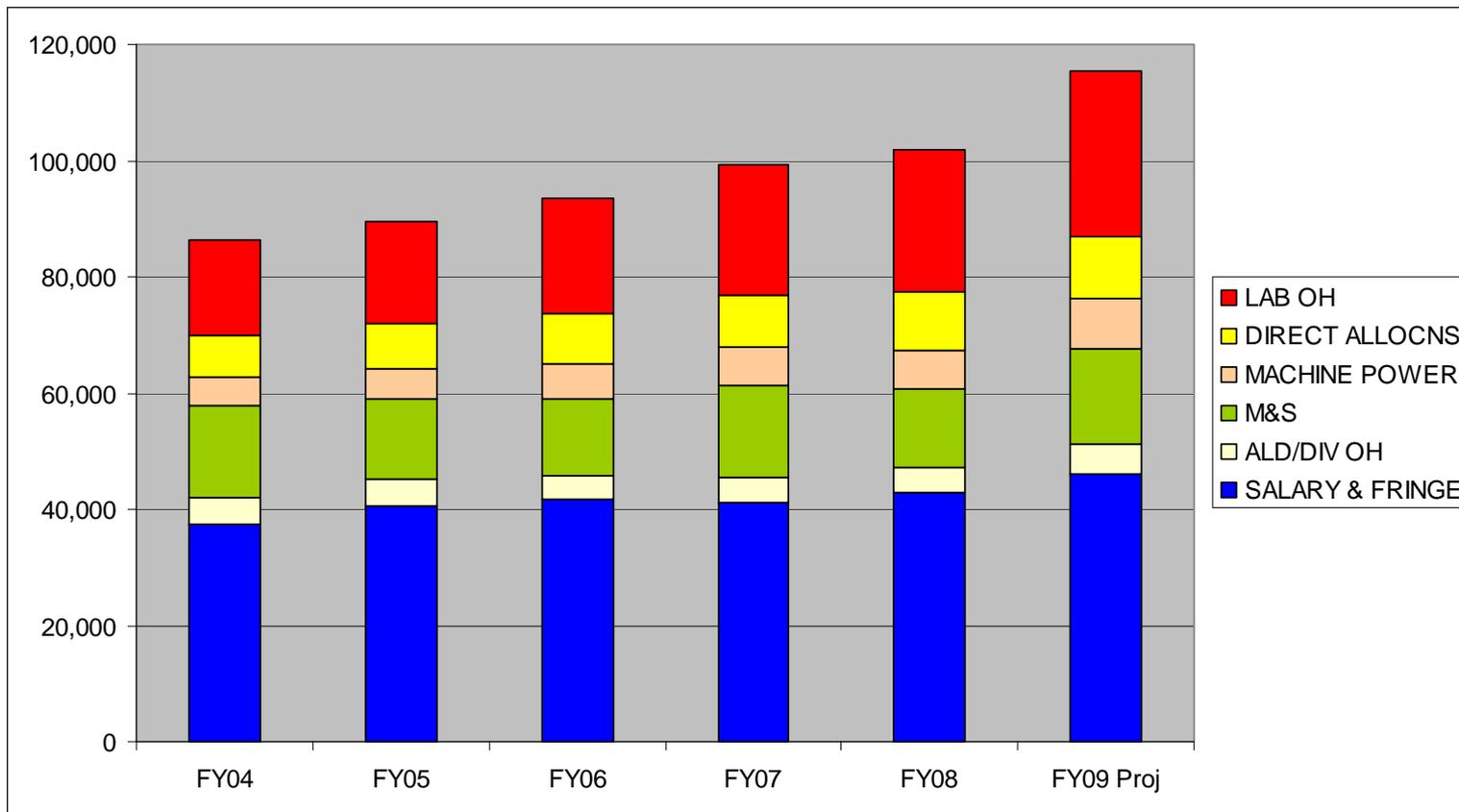
What we have “in the bank” for FY’09 is

\$106,290K (and an additional \$6M AIP + Capital)

The exercise has been very helpful in setting appropriate **divisional** M&S budgets

The result is not in, but ball-park shows APS needs ~\$115M operations funding in 2009, with flat headcount (~440 FTEs)

DOE
presentation
VG

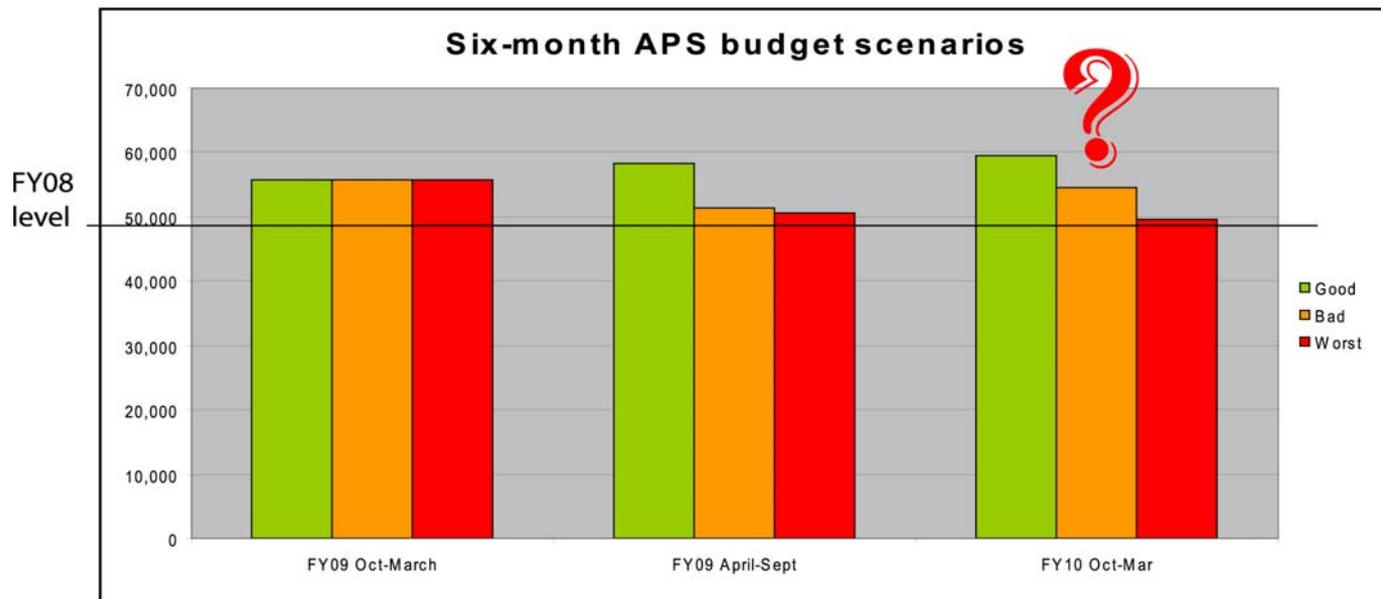


Note this shows loss of ~\$3M LCLS income in 2009

Need to prepare scenarios, using six-month budgets

Scenario	Oct-March	April-Sept	Year
Bad	55,800	51,500	107,300
Good	55,800	60,500	116,300

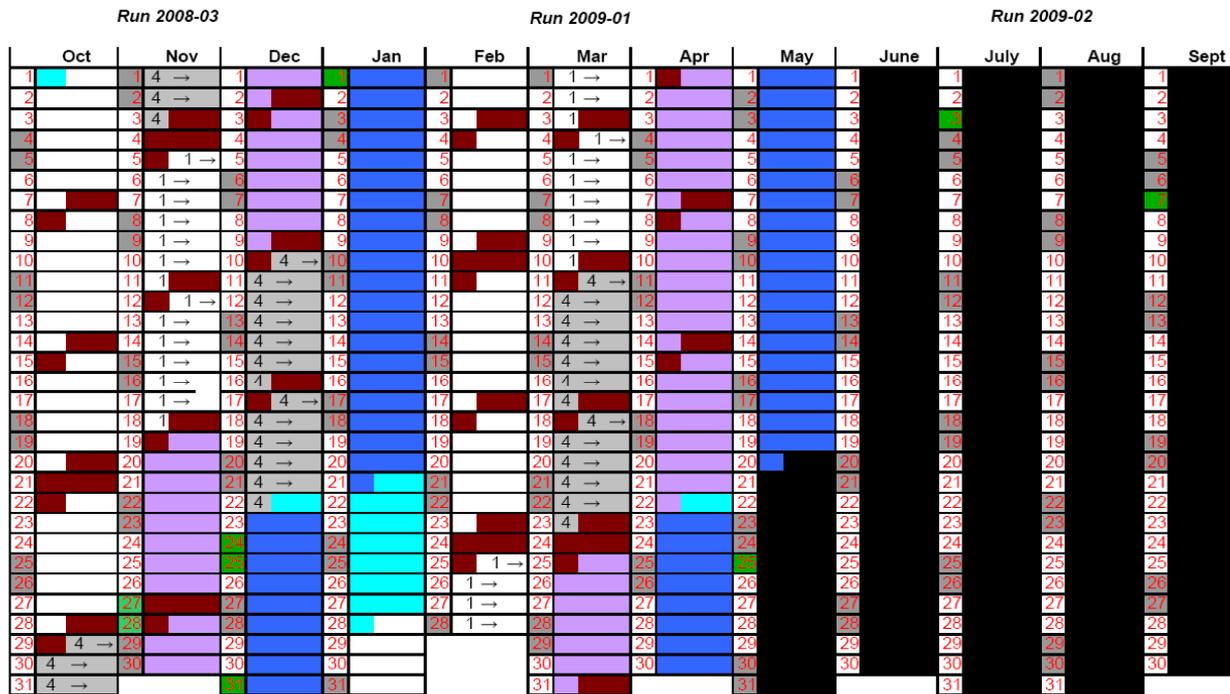
Need to plan now for scenarios “Good” and “Bad”, operate “normally” for Oct-March, be prepared for layoffs if bad (~50)



Worst assumes return to \$99,000K ops for '010 (\$49,500K six months) which would be the case if we see no increase in FY09 or FY10 – not planning for this but stakeholders need to understand consequences

Draft Schedule for 2009-01 (comments due to John Quintana this week)

DRAFT APS FY 2009 Long Range Operations Schedule



User Operation in standard lattice
 User Operation in Reduced Horizontal Beam Lattice (RHB)

Top-Up Operations is standard unless indicated in fill pattern

SOM Periods
 1 Hybrid Fill - (singlet)
 4 324 Singlets - Non Top-Up

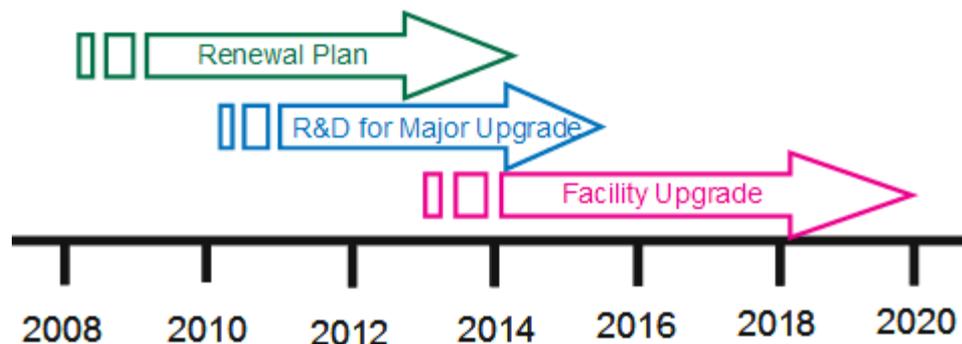
Fill pattern is 24 singlets unless otherwise indicated by number

Machine Studies
 Maintenance
 Shifts set aside for Studies/
 Machine Intervention as Needed

Weekends
 Lab Holidays

APS Renewal Planning

DOE
presentation
VG



Steering Committee Members:

Denny Mills
Rod Gerig
George Srajer
John Maclean
Denis Keane (APS PUC Chair)
Paul Fuoss (APSUO Rep)
Bob Fischetti (Life Sciences Council Chair)
Dan Neumann (SAC Member)

At Oct 20-21st workshop near ANL we will invite SAC to recommend priorities of output from science teams

- 12 SAC members to attend renewal meeting

And presented to NIH/DOE-OBBER program reps

Beamline proposals

- 1-ID** A Dedicated High-Energy X-ray Beamline for the Studying the Mechanical Behavior of Materials
 - 1-ID** Medium-Term (5 year) Plan for the Development of High Energy Diffraction Microscopy (HEDM)
 - 1-BM** and **11-BM** High Resolution Powder Diffraction at the APS
 - 2-BM** Mid-Term Plan for 2-BM Upgrade: Integration of Microtomography and Nanotomography Capabilities at Beamline 2-BM
 - 2-ID** 2-ID Mid-Term Upgrade Plan
 - 3-ID** μeV -resolution X-ray Spectroscopy
 - 4-ID-C** Optics and instrumentation upgrades for electronic and magnetic materials research at beamline 4-ID-C
 - 4-ID-D** Optics and instrumentation upgrades for hard x-ray magnetic spectroscopy research at beamline 4-ID-D
 - 5** DND-CAT Medium-Term Upgrade Proposal
 - 6-ID** Optics and instrumentation upgrades for resonant scattering and diffraction research at beamline 6-ID
 - 7-ID** Beamline 7ID Mid-term Upgrade plan
 - 8-ID** Extraordinary new Time-Resolved Capabilities for XPCS and GISAXS
 - 9-BM** Catalyst Center at 9-BM
 - 9-ID** Enhancement of Scientific Facilities for Medium-Energy-Resolution Inelastic Scattering and Liquid Surface Scattering at Beamline 9-ID
 - 10-ID** Study of Complex Materials and NanoStructures Using Hard X-ray Photoemission Spectroscopy
 - 11-ID-B** The Next-Generation Pair-Distribution-Function Beamline (NG-11IDB)
 - 12-ID** Development of Dedicated SAXS Beamlines at 12-ID with Canted Undulators
 - 13** Canted Undulator Upgrade for GeoSoilEnviroCARS Sector 13
 - 14** Medium-term upgrades enabling new science at BioCARS
 - 16-ID** Directing and Controlling Matter under Extreme Pressures and Temperatures: An integrated approach with at least one order of magnitude improvement in spatial, temporal, diffraction, and energy resolution at HPCAT 16-ID
 - 18-ID** Proposal to Upgrade the BioCAT Beamline 18ID to a Dual-Inline Undulator A Configuration
 - 20-ID** Canted Undulator upgrade at Sector 20 providing a high throughput dedicated Micro-XAFS station
 - 30-ID** Midterm Upgrade Proposal for 30-ID XOR/IXS Beamline
 - 32-ID** Mid-term plan for 32-ID Upgrade
 - 33** Surface and Interfacial Science at the APS
 - 34-ID** Science Opportunities for 3D x-ray diffraction microscopy - Sector 34
 - 34-ID** Medium-Term Upgrade Proposal for Dedicated Coherent X-ray Diffraction Facility at 34-ID
- Frontier science by adding pressure as a new dimension at APS beamlines: HPSynC upgrade
- A High-Energy Bending-Magnet Beamline
- High-field magnet development for x-ray scattering and spectroscopy studies
- A micro-focused, multi-probe high energy x-ray beamline for measurements at extreme conditions
- Microminiature XBPM and Flux Monitor for High-Flux Micro-Focused Hard X-ray Beams
- A new ultra-high sensitivity intermediate energy x-ray magnetic circular dichroism facility
- Strengthening x-ray detector development and support efforts at the APS
- Structural Science Using Tunable High-Energy Synchrotron X-Ray Source
- Support Structure for Pixel Array Detectors
- Test-bed for Nanopositioning Technique Enhancement
- Ultrafast-Detector upgrades
- Understanding the experiments of the future
- X-Ray BPM System Enhancement

Some example beamline proposals

8-ID Extraordinary new Time-Resolved Capabilities for XPCS and GISAXS (estimated cost ~\$9.8M)

Upgrade	XPCS	GISAXS	Comment
$I_{max} = 200$ mA	2× coherent flux	2× flux	
8 m straight with canted ID's			See next 3 items
5-m 3.3-cm-period planar ID	2.6× coherent flux	N/A	
2.5-m 3.3-cm-period planar ID	N/A	10× flux	Enlarged upstream "pinhole"
Front end upgrade			To support canted ID's
First optics enclosure optics	Diffraction limited side-bounce mirror	Diffraction limited side-bounce mirror	Also dual "pinhole" and beam diagnostics
Large horizontal offset mono	N/A	X-ray energy tunable from 6–30 keV	X-ray energy is fixed at 7 keV today
Pilatus detector	N/A	> 1,000× increased time resolution	Custom tiling for SAXS/WAXS data collect
End station multilayer mono and vertical focusing	10–30× coherent flux	N/A	
XPCS optimized detector	1,000× increased time resolution and 10–100× data collection efficiency	N/A	≥ 1 MHz frame rate, 100% efficiency, firmware correlation, small pixels
Ancillary focusing optics	10× increased flux	100× increased flux	2-D GISAXS, 1-D XPCS
Total estimated enhancement factors for an individual experiment	<ul style="list-style-type: none"> • 50× increased coherent flux • Minimum delay times > 1,000× faster 	<ul style="list-style-type: none"> • 20× increased tunable flux • Time resolution 1,000× more • Tunable energy 	Excludes additional gains from horizontal (XPCS) and 2-D (GISAXS) focusing and wide bandpass (XPCS) multilayer mono operation

Table 1. Enhancement factors for XPCS and GISAXS based on the proposed APS and 8-ID upgrades.

<i>Jeff Brinker</i>	<i>Professor of Chemical & Nuclear Engineering, University of New Mexico and Senior Scientist, Sandia National Laboratory</i>
Mark Foster	Professor and Department Chair, College of Polymer Science and Polymer Engineering, University of Akron
James Harden	Associate Professor of Physics, University of Ottawa
<i>Edward Kramer</i>	<i>Professor of Materials Science, University of California-Santa Barbara</i>
Jyotsana Lal	Physicist, Argonne National Laboratory
<i>Robert Leheny</i>	<i>Associate Professor of Physics, Johns Hopkins University</i>
Karl Ludwig	Professor of Physics, Boston University
<i>Lawrence Luo</i>	<i>Associate Professor of Physics, Northern Illinois University</i>
<i>Simon Mochrie</i>	<i>Professor of Applied Physics, Yale University</i>
Oleg Shpyrko	Assistant Professor of Physics, University of California-San Diego
Sunil Sinha	Professor of Physics, University of California-San Diego
<i>Mark Sutton</i>	<i>Professor of Physics, McGill University</i>
Pappannan Thyagarajan	Senior Physicist, Argonne National Laboratory
<i>Ting Xu</i>	<i>Assistant Professor of Materials Science and Engineering, UCB</i>

Table 4. 8-ID principal investigators to whom the proposed 8-ID upgrade plans have been circulated to. Italicized entries denote members of 8-ID's beamline advisory group (BAG).

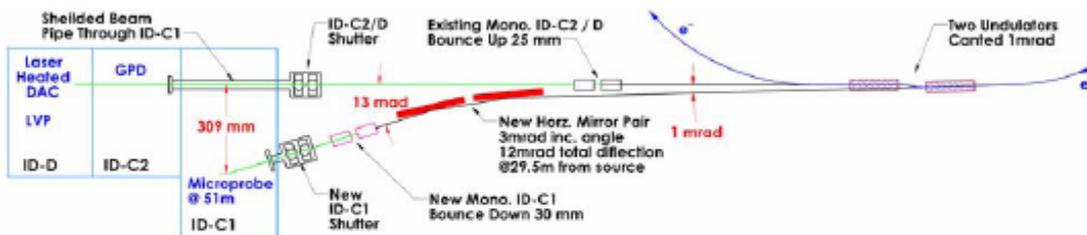


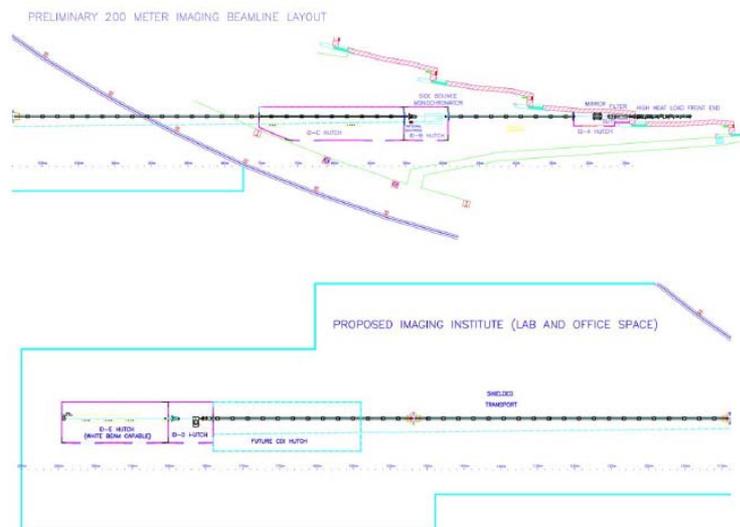
Figure 1: Schematic for the proposed Sector 13 canted undulator mode upgrade.



Support Structure for Pixel Array Detectors

Letters of Intent for new beamlines and major upgrades

- Advanced X-ray Imaging Collaborative Development Team (AXI-CDT)
- BioNanoProbe
- Sector 8-BM Redevelopment
- X-ray High Field Collaborative Development Team (XHF-CDT)
- X-ray Interfacial Science Collaborative Development Team (XIS-CDT)
- Dynamic Shock Compression Beamline (DC-CAT)



Accelerator proposals

Categories:

- Science Enablers
- Insertion Device Upgrades
- Beam Stability
- Obsolescence, Spares and Upgrades
- Infrastructure
- R&D

We will plan for obsolescence in parallel with renewal planning

Five Year Strategic Plan for APS Beam Stability [\(APS 1266287\)](#)

Glenn Decker, Bingxin Yang, Frank Lenkszus etal. (Feb. 2008)

Project	Sub-Project (ICMS content ID)	Proposer	Objectives / Tasks	Duration	Budget
RF Beam Position Monitoring and Feedback (APS 1258136)	Monopulse rf Beam Position Monitor Upgrade (APS 1255203)	Glenn Decker	Deploy new FPGA-based monopulse rf bpm data acquisition system. For improved resolution, diagnostic capability, and to alleviate obsolescence issues.	3 years	\$585 K
	Storage Ring Real-Time Feedback System Upgrade (APS 1255207)	Frank Lenkszus	Increase sampling rate of storage ring real-time feedback system from 1.5 kHz to 20 kHz. Suppress noise out to 200 Hz closed-loop bandwidth.	4 years	\$600 K
	Fast Steering Corrector Relocation (APS 1255212)	Mark Jaski	Relocate BH4 storage ring corrector magnets to increase their frequency response.	3 years	\$181 K
	Spurious Storage Ring Vacuum Chamber Microwave Mode Dampers (APS 1255205)	Glenn Decker	Eliminate spurious microwave modes from the storage ring large-aperture vacuum chambers which affect vertical rf beam position monitor readings.	5 years	\$440 K
X-ray Beam Position and Flux Monitoring (APS 1258137)	X-ray bpm System Enhancement (APS 1255209)	Glenn Decker	Design, fabricate, install and commission hard x-ray beam position monitor system.	4 years	\$1,500 K
	SR Portable detector upgrade (APS 1255145)	Bingxin Yang	Enhancement of portable detector capabilities: Absolute flux measurements: better than 25% Beam motion measurements: > 10 kHz Flux density stability (size fluctuation): < 0.5% Digital video: beam size measurement > 1 kHz	3 years	\$182 K
	Microminiature XBPM and Flux Monitor for High-Flux Micro-focused Hard X-ray Beams (APS 1256819)	Deming Shu	Construct diamond-based photoconductive beam position and flux monitor for high-flux micro-focused hard x-ray beams.	5 years	\$165 K
Storage Ring Tunnel Temperature Regulation Upgrade (APS 1255208)	NA	Glenn Decker	Improve APS storage ring tunnel temperature regulation to within +/- 0.1 degrees C.	4 years	\$4,000 K

Science teams

Condensed Matter and Material Physics

Sam Bader (MSD) *chair*
Sue Coppersmith (Wisconsin)
John Freeland (Argonne)
Pat Mooney (SFU Canada)
Julia Phillips (SNL-ABQ)
Ivan Schuller (UCSD)
Gopal Shenoy (APS)
Brian Stephenson (Argonne)

Engineering Applications / Applied Science

Gene Ice (ORNL) *chair*
Jon Almer (APS)
Mark Daymond (Queens Canada)
George Fenske (Argonne)
Lyle Levine (NIST)
Robert Suter (Carnegie-Mellon)
Angus Wilkinson (Georgia)

Fundamental Interactions in Chemical, Atomic and Molecular Physics

Stuart Rice *chair*
Linda Young *co-chair* (Argonne)
Peter Chupas (APS)
Steve Pratt (Argonne)
Robin Santra (Argonne)
Dave Tiede (Argonne)

Geological, Environmental, and Planetary

Neal Sturchio (UIC) *chair*

David Bish (IU)
Steve Heald (APS)
Russel Hemley (Carnegie)
Ken Kemner (Argonne)
Robert Liebermann (SUNY SB)
Kathy Nagy (UIC)
Steve Sutton (UofC)

Life Sciences (except MX)

Lee Makowski (Argonne) *chair*
Jon Harrison (Arizona State)
Lisa Miller (BNL)
Joseph Orgel (IIT)
Stuart Stock (NWU)
Stefan Vogt (APS)
Gayle Woloschak (NWU)

Macromolecular Crystallography

Tony Kossiakoff *chair*
Keith Brister (NWU)
David Eisenberg (UCLA)
Keith Moffat (UofC)
Janet Smith (Michigan)
Ward Smith (NIH)

Materials Science and Technology

Paul Evans (Wisconsin) *chair*
Simon Bare (UoP)
Kathy Faber (NWU)
John Mitchell (Argonne)
Cev Noyan (Columbia)
Carol Thompson (NIU)
Choong-Shik Yoo (Washington State)

Polymers/Soft Materials

Ken Shull (NWU) *chair*
Derk Joester (NWU)
Brian Landes (Dow)
Simon Mochrie (Yale)
Mark Schlossman (UIC)
Gila Stein (NIST)
Jin Wang (APS)

Surfaces, Interfaces and Thin Films

Paul Fenter (Argonne) *chair*
Mike Bedzyk (NWU)
Joel Brock (Cornell)
Roy Clark (Michigan)
Ron Pindak (NSLS)
Mike Toney (SSRL)
Hoydoo You (Argonne)
Paul Zschack (APS)

Chemical Sciences and Engineering (new)

Jeff Miller (*Chair*)
Simon Bare (UOP)
Peter Chupas (APS)
Debbie Myers (Argonne)
Jim Penner-Hahn (Michigan)
Lynda Soderholm (Argonne)

Technical coordinators

- **Beamline Techniques**
 - **Coherence:**
Ian McNulty (XSD)
 - **Full field imaging:**
Wah-Keat Lee (XSD)
 - **General Diffraction (Bulk and Interfaces):** Jon Tischler (ORNL)
 - **High Pressure:**
Guoyin Shen (HP CAT)
 - **High Energy:**
Dean Haeffner (XSD)
 - **Inelastic Scattering:**
Thomas Gog (XSD)
 - **Nuclear Resonant Scattering:**
Ercan Alp (XSD)
 - **Magnetic scattering:**
Jonathan Lang (XSD)
 - **Microprobe:**
Jorg Maser (CNM/XSD)
 - **Macromolecular Crystallography:**
Craig Ogata (Bioscience ANL)
 - **Powder Diffraction:**
Brian Toby (XSD)
 - **SAXS:**
Byeongdu Lee (XSD)
 - **Spectroscopy (EXAFS, XANES):**
Matt Newville (GSE CARS)
 - **Time-resolved:**
Eric Dufresne (XSD)
- **Technical Support**
 - **Beamline controls:**
Mark Rivers (GSE CARS)
 - **Detectors:**
Steve Ross (XSD)
 - **Nanopositioning:**
Deming Shu (XSD)
 - **Optics:**
Tom Toellner (XSD)
 - **Scientific software:**
Peter Jemian (AES)
- **Behind the Shield Wall**
 - **Accelerator Operations:**
Michael Borland (ASD)
 - **Beam Stability:**
Glenn Decker (ASD)
 - **Front Ends:**
Patrick den Hartog (AES)
 - **IDs:**
Liz Moog (ASD)
- **Facility Infrastructure**
John Maclean (AES)

APS Renewal planning – next steps

- Science teams produce draft reports by mid-September
 - Present overview to APSUO/PUC joint meeting September 17

- Presentations to SAC and at October workshop with users
 - October 20-21 – registrations encouraged (see APS web page)

- Draft whitepaper to DOE by mid-November
 - Will contain science highlights demanding renewal
 - *With technical background, but little detail*
 - Discussion of relation to upgrade options

- Continue momentum
 - Identify key themes
 - Develop public document
 - Further workshops on key themes
 - *Energy?*
 - *User's Meeting*

APS upgrade R&D

- Options for a machine upgrade after the Renewal should be considered
 - Planning in more detail for shorter-term LSS (long-straight section) lattice
- 4th Generation R&D
 - Important to keep the momentum going (LDRD leveraging)
 - *APS2020 will be the best hard x-ray source*
 - KEK is building a prototype ERL and would like to collaborate
 - *They intend to replace the Photon Factory with a 5-GeV ERL*
 - We continue LDRD supported R&D on ERL and X-Ray FEL-O
 - *Connection to BESAC study of next-generation needs*
 - *Prospects for BES funds for R&D in better budget scenario*

Project Proposal accepted beginning Run Cycle 2008-3

GUP-10279	Structural Studies on Adenovirus capsids and associated structural proteins	VijayReddy	The Scripps Research Institute	23-ID-D	36 Shifts
-----------	--	------------	--------------------------------	---------	-----------

Partner User Proposals accepted beginning Run Cycle 2008-3

PUP-77	Structural Study of the 3'-UTR RNAs and other biomacromolecular systems	X. Zuo, J. Wang, D. Tiede, Y-X. Wang	NIH; Chemistry Division, ANL	12-ID	10% until SAXS beamline is operational; then 15%
PUP-80	Nuclear Resonant Spectroscopy and Lattice Dynamics of Binary Compounds and Alloys of Eu, Sn, and Dy under Pressure	M. Nicol, O. Tschauner, E. Tanis, G. Shen, T. Toellner, W. Sturhahn, J. Zhao, E. Alp	UNLV; HPCAT; APS, ANL	3-ID	10% for 2 years; then reevaluate
PUP-81	PDF@HP: Developing high pressure pair distribution function capabilities at 11-ID-B	K. Chapman, G. Halder, J. Hriljac, A. Wilkinson, D. Locke, P. Chupas, R. Winans. J. Parise, J. Schleuter, C. Kurtz, R. Pugmire, R. Lestz	APS, ANL; MSD, ANL; GA Tech; U of Birmingham	11-ID-B	10% for 2008-3; 15% for five more cycles; then reevaluate

Search for Division Director for XSD

- **Dennis M. Mills**, Deputy Associate Laboratory Director, Argonne Scientific User Facilities (Chair) (dmm@aps.anl.gov);
- **Samuel D. Bader**, Associate Division Director, Argonne Materials Science Division (MSD), Group Leader, MSD Magnetic Films Group, Argonne Senior Physicist, and Argonne Distinguished Fellow (bader@anl.gov);
- **Kathy Harkay**, Group Leader, Accelerator Physics Group, Argonne Accelerator Systems Division (harkay@aps.anl.gov);
- **Dion L. Heinz**, Associate Professor, Department of the Geophysical Sciences, James Franck Institute, and the College, The University of Chicago (heinz@uchicago.edu);
- **Miles V. Klein**, Research Professor of Physics and Center for Advanced Study Professor of Physics Emeritus, University of Illinois at Urbana-Champaign, and Chair, Advanced Photon Source Scientific Advisory Committee (mvklein@illinois.edu);
- **William G. Ruzicka**, Director, Argonne APS Engineering Support Division (ruzicka@aps.anl.gov);
- **Steven K. Streiffer**, Acting Division Director, Argonne Center for Nanoscale Materials (streiffer@anl.gov); and
- **Stefan Vogt**, physicist, X-ray Microscopy and Imaging Group, Argonne X-ray Science Division (vogt@aps.anl.gov).

Other

- Lab Management System (LMS) to be rolled out at the end of year, seeking ISO9000 registration

Agenda

- 2:45 p.m. APS Update - Murray Gibson
- 3:05 p.m. Design and Construction of the LCLS Undulator System by APS - Efim Gluskin
- 3:25 p.m. APS Internal Assessment of the Short Pulse (SPX) Project - Rod Gerig
- 3:45 p.m. Adjourn